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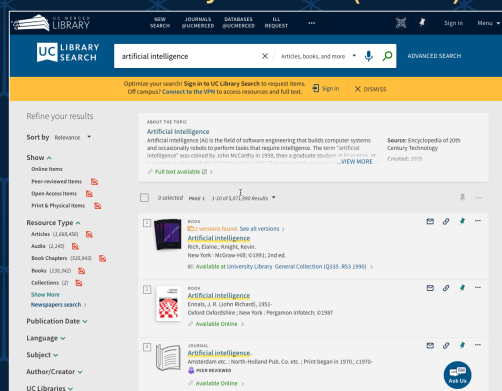
## Presentation of Preliminary Findings

- Purpose: Compare UC Library Search to AI Research Assistant
- UC Merced Context
  - Current AI Tools at UC Merced
- Tools used in the Research Study
  - UC Library Search ("Tool A")
  - AI Research Assistant ("Tool B")
- Research Study
  - Research Questions
  - Design & Methods
  - Participant Demographics
  - Results: Perceptions, Attitudes, Behaviors
  - Preliminary Findings
  - Takeaways for Teaching
- Next Steps & Future Research

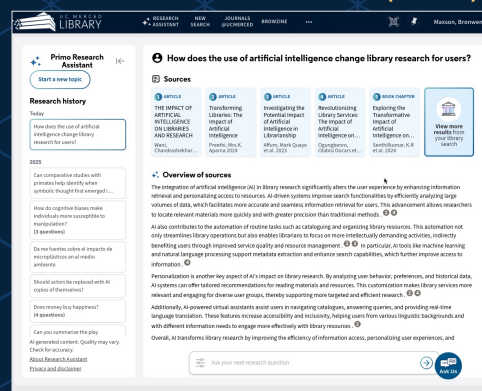
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# Comparing Two Tools

## UC Library Search (UCLS)



## AI Research Assistant (AIRA)



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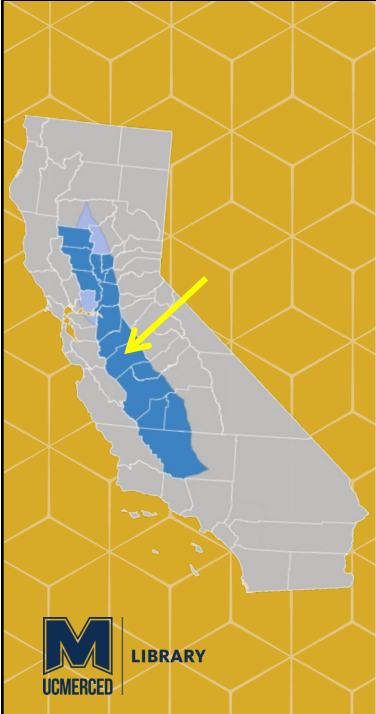
# Guiding Research Questions

- How will students use the AI Research Assistant tool to carry out routine research tasks such as finding books or articles on a topic? (observable behaviors)
- What will students say about their experience with this tool (attitudes, perceptions)?
- What are some takeaways for teaching this tool to undergraduates as part of a library's instruction program?
- What are some lessons learned for carrying out a similar study?



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## UC Merced in Context



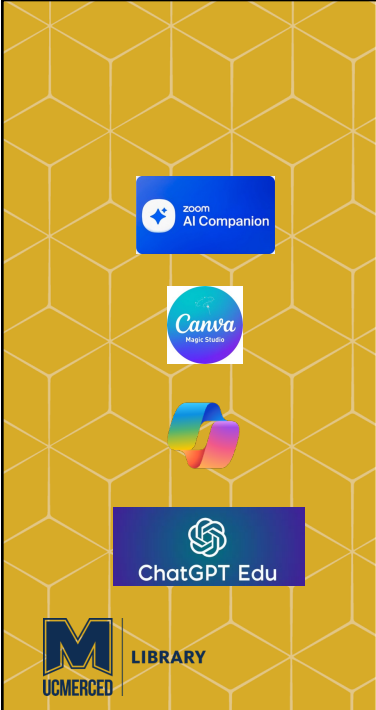
- UC Merced is a mid-sized R1 University in California's Central Valley
- Our students are socioeconomically diverse, with 60% Pell eligible and 62% are **First Generation**.
  - 98% of undergraduates are from California, and
  - 40% of undergraduates come from the Central Valley



Map of the Central Valley region of California by Cristiano Tomás, CC BY-SA 4.0

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## Current Campus AI Tools



**UCMERCED** Directory Apply Give

**Available AI Tools & Services**

The following AI services are generally available to the UC Merced community and supported by the Office of Information Technology. When logging in to these tools with your UC Merced credentials, appropriate safeguards are in place to ensure the protection and privacy of institutional data.

|                           | Availability     | Approved For               | Approved Data Protection Levels | Cost                        | Data Models                               | Data Sources                            |
|---------------------------|------------------|----------------------------|---------------------------------|-----------------------------|-------------------------------------------|-----------------------------------------|
| Microsoft Copilot         | Available Now    | Faculty, Staff, & Students | P4                              | Included in campus contract | Multiple, Undisclosed                     | Web                                     |
| Copilot for Microsoft 365 | Available Now    | Faculty & Staff            | P4                              | \$360 Annually              | Multiple, Undisclosed                     | Any data you keep in Microsoft Products |
| ChatGPT EDU               | UCOP Negotiating | Faculty & Staff            | P4                              | UCOP Negotiating            | GPT-4.0                                   | Web                                     |
| Zoom AI Companion         | Available Now    | Faculty, Staff, & Students | P2                              | Included in campus contract | Zoom LLM, Meta Llama 2, OpenAI, Anthropic | Any data you keep in Zoom               |
| Canva Magic Studio        | Available Now    | Faculty, Staff, & Students | P2                              | Included with paid license  | GPT-4.0                                   | Web                                     |

ai.ucmerced.edu

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## Study Design / Methods

- University of California IRB Protocol Number:  
[UCM2025-57](#)
- A/B Testing of two tools:
  - UC Library Search ("Tool A")
  - Primo (AI) Research Assistant ("Tool B")
- Mixed Methods:
  - Quantitative counts of relevant results and time duration for task completion (screen recordings)
  - Qualitative interview questions about both tools



LIBRARY

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AI Research Assistant

**Does money buy happiness?**

**5 relevant sources and "View More" link to catalog**

**Abstract**

**Overview of sources**

**Search box with filters for format and date**

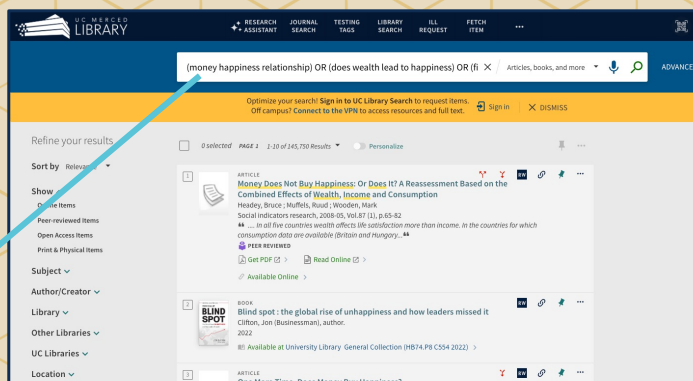
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LIBRARY

## UC Library Search

In this screenshot, you can see the resulting Boolean-style string from clicking 'View More' from the AI Research Assistant:



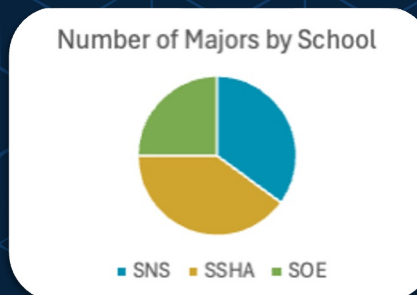
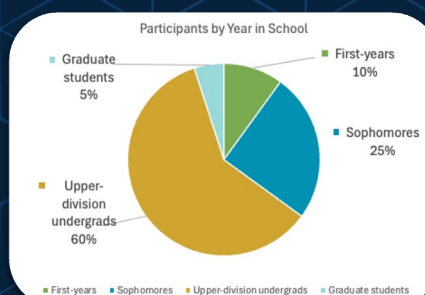
(money happiness relationship) OR (does wealth lead to happiness) OR (financial status and life satisfaction) OR (impact of income on well-being) OR (psychology of money and happiness) OR (Can wealth lead to happiness?) OR (Does financial security contribute to overall well-being?) OR (Is there a correlation between income and life satisfaction?) OR (How does money influence emotional well-being?) OR (Are rich people happier than those with less money?) OR (Does money buy happiness?)



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## Participant Demographics

- 35% of study participants were first- or second-year undergraduates
- 65% were either upper-division undergraduates or graduate students
- Our sampling showed an even distribution between the three Schools at UC Merced:
  - Natural Sciences (SNS)
  - Social Sciences, Humanities & Arts (SSHA)
  - Engineering (SOE)



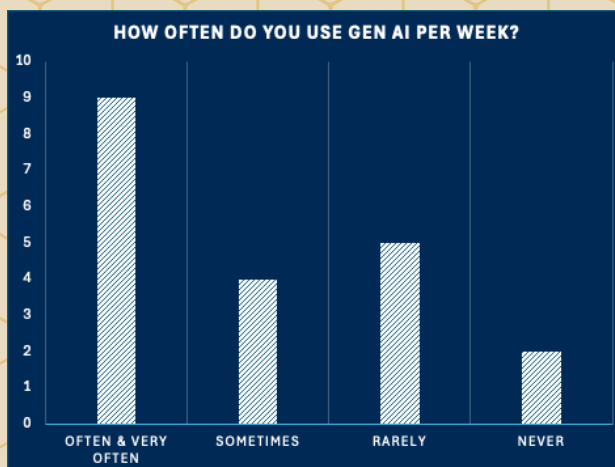
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## Results

13 out of 20 participants or 65% use Gen AI often or sometimes per week



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## More Results

In each tool, participants were asked to carry out common tasks found in research writing assignments:

1. Identify a book or article for background information
2. Find 3 recent (last 3 years) articles relevant to your topic
3. Find one contradictory perspective on your research topic

UC Library Search



AI Research Assistant

- 25% more likely to find a contradictory or opposing source using AIRA
- 5% more likely to identify background information on a topic using AIRA

By analyzing the video recordings of their research tasks, we learned :

- 70% of participants spent less time in the Research Assistant AI tool than UC Library Search.
- On average, using the AI Research Assistant tool was 2 minutes and 2 seconds faster than UCLS.



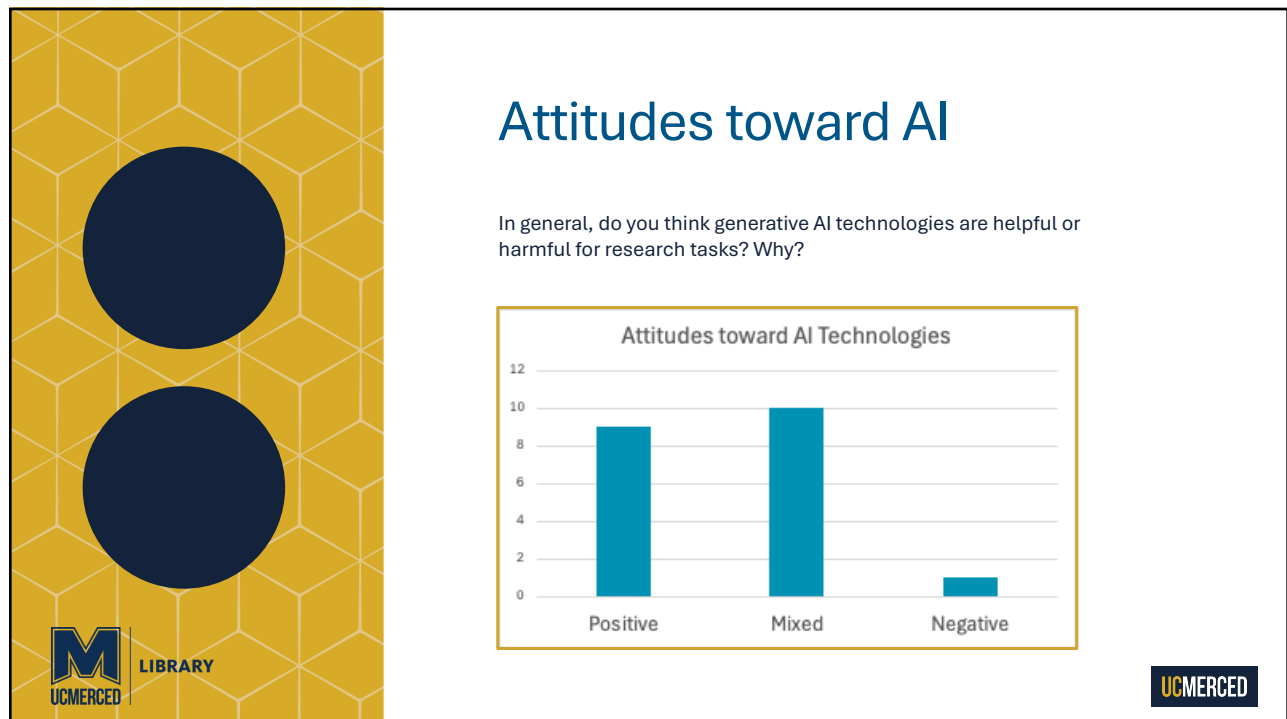
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## Perceptions



|                                  | UC Library Search                                                                                     | AI Research Assistant                                                                                                                                                                                                                                        | Both                                                                                  |
|----------------------------------|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1 – Relevant results?            | 6                                                                                                     | 13                                                                                                                                                                                                                                                           | 1                                                                                     |
| 2 – Accurate results?            | 10                                                                                                    | 10                                                                                                                                                                                                                                                           | 0                                                                                     |
| 3 – Which tool saves time?       | 3                                                                                                     | 17                                                                                                                                                                                                                                                           | 0                                                                                     |
| 4 – Which do you prefer?         | 6                                                                                                     | 13                                                                                                                                                                                                                                                           | 1                                                                                     |
| 5 - Why do you prefer this tool? | <ul style="list-style-type: none"> <li>• More control</li> <li>• Familiarity with the tool</li> </ul> | <ul style="list-style-type: none"> <li>• "[it] interprets me",</li> <li>• "I can ask follow-up questions"</li> <li>• "I like the overview/summary",</li> <li>• "[it] will encourage students to explore more."</li> <li>• "Helps you get unstuck"</li> </ul> | <p>"I heard on the news AI can be harmful"</p> <p>"More trustworthy than ChatGPT"</p> |

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## Behaviors

|                                                      |                       |
|------------------------------------------------------|-----------------------|
| How many asked follow-up natural language questions? | 50% (10 participants) |
| How many used suggested prompts?                     | 30% (6 participants)  |
| How many located and used filters?                   | 35% (7 participants)  |
| How many clicked 'view more'?                        | 50% (10 participants) |
| How many clicked 'try again'?                        | 10% (2 participants)  |
| How many clicked thumbs up/down to train the model?  | 5% (1 participant)    |
| How many commented on the tool?                      | 25% (5 participants)  |



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## Findings

- Participants were accepting and positive about the AI Research Assistant Tool
- Participants perceived the AIRA to be easier to use, time-saving, and to have better comprehension of their queries. They used words/phrases like “accurate,” “efficient,” and “[it] understands me.”
- Observed search behaviors still demonstrate the need for information literacy instruction.



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## Takeaways for Teaching

### Information Literacy Instruction

- Keywords vs. Prompt Engineering
- Filters and Relevance Ranking
- Information Need (Information Life Cycle and Landscape)

### Flexible Mindset

- Go beyond first 5 results (try again!)
- Use 'View More' to visit UC Library Search for more results and options
- Consider alternative search tools

### Critical Thinking

- Understand origins of AI technologies
- Critique system and its output
- Critique and edit the Boolean string that the AI tool generates

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## Next Steps / Future Research

- Finish qualitative analysis of study results
- Turn notes into a manuscript for publishing
- Next study:
  - Have participants talk aloud as they perform tasks
  - Find ways to reduce cognitive overload further so students can remember the tasks
  - Focus on just one or two research questions

- Student searching behavior continues to be interesting and the introduction of AI Technologies to research activities will require new studies in information-seeking behavior
- More research is needed to compare the quality of keywords vs. quality of prompts in each tool and their resulting performance
- More research on the AI Research Assistant's handling of controversial topics is needed to determine if the tool censors results
- Studies on outcomes after library instruction interventions would also be interesting



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first. further. forward.

Thank you for your time and attention today.

This research was supported by a Mini Grant from the Librarians Association of the University of California (LAUC).

Thank you also to Solomon Ameen, my co-researcher who was unable to travel to be here today. Contact us at [bmaxson@ucmerced.edu](mailto:bmaxson@ucmerced.edu) or [sameen@ucmerced.edu](mailto:sameen@ucmerced.edu)

**LAUC** Librarians Association of the University of California

